THE UNIVERSITY OF NEW MEXICO

ECE 538
Advanced Computer Architecture

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QUIZ-2

- IF modules have independent, exponentially distributed lifetimes (age of module does not affect probability of failure), the overall failure rate is the sum of failure rates of the modules

Calculate:

-- The failure rate and MTTF of a system consisting of 1- disks (1M hour MTTF per disk), 1 disk controller (0.5M hour MTTF per controller), and 1 power supply (0.2M hour MTTF per supply).

$$FailureRate = 10\times\frac{1}{1000000}+\frac{1}{500000}+\frac{1}{200000}$$
$$=\frac{10+2+5}{1000000}=17\times10^{-6},$$

$$MTTF=\frac{1}{17\times10^{-6}}\approx 59{,}000(hours)$$

Quiz-2

- IF modules have independent, exponentially distributed lifetimes (age of module does not affect probability of failure), the overall failure rate is the sum of failure rates of the modules

Calculate:

-- Assuming a system consisting of 10 disks (1M hour MTTF per disk), and the system is considered to fail if 2 disks fail. Calculate the MTTF.

$$FailureRate = 10 \times \frac{1}{1000000} / 2$$
$$= 5 \times 10^{-6},$$

$$MTTF = \frac{1}{5 \times 10^{-6}} \approx 200{,}000(hours)$$